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09/083,966	05/26/1998	NICHOLAS J. DORAN	604-445	4850

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EXAMINER
PHAN, HANH

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
✓ Office Action Summary		09/083,966	DORAN ET AL.
		Examiner	Art Unit
		Hanh Phan	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07 June 2006</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>10,11,43-45 and 47-58</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>10, 11, 43-45 and 47-58</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

1. This office Action is responsive to the Amendment filed on 06/07/2006.

Claim Objections

2. Claims 10 and 56 are objected to because of the following informalities:

-In claim 10, lines 3 and 4, the phrase **"the plurality of elements including at least a fiber length and discrete dispersion compensator"** should be changed to -- **each dispersion element including at least a fiber length and discrete dispersion compensator** --. Appropriate correction is required.

-In claim 56, lines 4 and 5, the phrase **"the plurality of elements including at least a fiber length and discrete dispersion compensator"** should be changed to -- **each dispersion element including at least a fiber length and discrete dispersion compensator** --. Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature **"wherein the two dispersion elements of a section comprise discrete dispersion compensators"** specified in the claims 11, 51 and 57 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an

application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Specification

4.   The following guidelines illustrate the preferred layout for the specification of a
utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

        As provided in 37 CFR 1.77(b), the specification of a utility application should
include the following sections in order. Each of the lettered items should appear in
upper case, without underlining or bold type, as a section heading. If no text follows the
section heading, the phrase "Not Applicable" should follow the section heading:

        (a) TITLE OF THE INVENTION.
        (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
        (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
                DEVELOPMENT.

(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer
program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)),
and tables having more than 50 pages of text are permitted to be
submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a).
"Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37
CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A
"Sequence Listing" is required on paper if the application discloses a
nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if
the required "Sequence Listing" is not submitted as an electronic
document on compact disc).

Double Patenting

5.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11
F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225
USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA
1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,*
418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be
used to overcome an actual or provisional rejection based on a nonstatutory double
patenting ground provided the conflicting application or patent is shown to be commonly
owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a
terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with
37 CFR 3.73(b).

6.   Claims 10, 11, 43-45 and 47-58 are provisionally rejected under the judicially

created doctrine of obviousness-type double patenting as being unpatentable over

claims 1-2 of copending Application No. 10/713,037 (Doran et al). Although the

conflicting claims are not identical, they are not patentably distinct from each other

because the limitations recited in claims 10, 11, 43-45 and 47-58 of the instant

application are encompassed by claims 1-2 of copending Application No. 10/713,037

(Doran et al).

Regarding claim 10, Doran et al (copending Application No. 10/713,037)

discloses an optical communication system for transmitting a soliton or substantially

soliton pulse, comprising:

a plurality of dispersion elements, the plurality of elements including at least a

fiber lengths and a discrete dispersion compensator, the fiber length and discrete

dispersion compensator having different dispersions, wherein the path average

dispersion of the plurality of dispersion elements is zero or anomalous (see claims 8-9

and 13-17 of copending Application No. 10/713,037).

Regarding claim 11, Doran et al (copending Application No. 10/713,037)

discloses an optical communication system for transmitting a soliton or substantially

soliton pulse, comprising:

a plurality of discrete dispersion compensators, at least two of which have

different dispersions, wherein the path average dispersion of the discrete dispersion

compensators is zero or anomalous (see claims 8-9 and 13-17 of copending Application

No. 10/713,037).

Regarding claim 43, Doran et al (copending Application No. 10/713,037)

discloses an optical communication system comprising:

a plurality of sections, each section including at least two dispersion elements

that have dispersions of opposite sign, wherein the plurality of sections permits

propagation of a stable or quasi-stable optical pulse, and wherein the optical pulse has

a time-bandwidth product greater than a time-bandwidth product of an optical pulse that

is Gaussian in shape (see claims 8-9 and copending Application No. 10/713,037).

Regarding claim 44, Doran et al (copending Application No. 10/713,037)

discloses wherein the optical pulse alternately expands and compresses as it

propagates through the sections (see claims 8-9 and 13-17 of copending Application

No. 10/713,037).

Regarding claim 45, Doran et al (copending Application No. 10/713,037)

discloses wherein the path average dispersion of the plurality of sections is zero or

anomalous (see claims 8-9 and 13-17 of copending Application No. 10/713,037).

Regarding claims 47-49, it would have been obvious to obtain the difference

between the dispersion magnitudes of the two dispersion elements is less than

12ps/Km in order to compensate the dispersion of the signal.

Regarding claims 50-55, Doran et al (copending Application No. 10/713,037)

discloses wherein the two dispersion elements of a section comprise an optical fiber

length and a discrete dispersion compensator (see claims 8-9 and 13-17 of copending

Application No. 10/713,037).

Regarding claim 56, Doran et al (copending Application No. 10/713,037)

discloses a method of optical communication comprising:

generating a plurality of optical pulses; and

launching the plurality of optical pulses through an optical communication system

comprising a plurality of dispersion elements, the plurality of elements including at least

a fiber length and a discrete dispersion compensator, the fiber length and the discrete

dispersion compensator having different dispersions, wherein the path average

dispersion of the plurality of dispersion elements is zero or anomalous, such that the

optical pulses are transmitted as soliton or substantially soliton pulses (see claims 8-9

and 13-17 of copending Application No. 10/713,037).

Regarding claim 57, Doran et al (copending Application No. 10/713,037)

discloses a method of optical communication comprising:

generating a plurality of optical pulses; and

launching the plurality of optical pulses through an optical communication system

comprising a plurality of discrete dispersion compensators, at least two of which have

different dispersions, wherein the path average dispersion of the plurality of discrete

dispersion compensators is zero or anomalous, such that the optical pulses are

transmitted as soliton or substantially soliton pulses (see claims 8-9 and 13-17 of

copending Application No. 10/713,037).

Regarding claim 58, Doran et al (copending Application No. 10/713,037)

discloses a method of optical communication comprising:

generating a plurality of optical pulses; and

launching the plurality of optical pulses through an optical communication system

comprising a plurality of sections, each section including at least two dispersion

elements that have dispersions of opposite sign, wherein the plurality of sections

permits propagation of corresponding stable or quasi-stable optical pulses, and wherein

the stable or quasi-stable optical pulses have a time-bandwidth product greater than a

time bandwidth product of optical pulses that are Gaussian in shape (see claims 8-9

and 13-17 of copending Application No. 10/713,037).

This is a _provisional_ obviousness-type double patenting rejection because the

conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 11, 43-45 and 50-58 are rejected under 35 U.S.C. 102(a) as being

anticipated by Doran (UK Patent Application GB 2277651 A, cited by applicant).

Regarding claims 11 and 50-57, referring to Figure 4, Doran teaches an optical communication system for transmitting a soliton or substantially soliton pulse, comprising:

a plurality of discrete dispersion compensators (i.e., discrete compensators 1 and 5, Fig. 4 and see abstract section), at least two of which have different dispersions, wherein the path average dispersion of the plurality of discrete dispersion compensators is zero (see Fig. 4 and abstract section).

Regarding claims 43-45 and 58, referring to Figure 4, Doran teaches an optical communication system comprising:

a plurality of sections, each section including at least two dispersion elements that have dispersions of opposite sign, wherein the plurality of sections permit propagation of a stable or quasi-stable optical pulse and wherein the optical pulse has a time bandwidth product greater than a time bandwidth product of an optical pulse that is Gaussian in shape (i.e., a plurality of sections 1 and 5 and each section including two dispersion elements that have dispersions of opposite sign, and inherently the optical pulse when propagates through the sections has a time bandwidth product greater than a time bandwidth product of an optical pulse that is Gaussian in shape, Fig. 4 and see abstract section).

9.   Claims 43-45, 47-49 and 58 are rejected under 35 U.S.C. 102(e) as being anticipated by Taga et al (US Patent No. 5,471,333).

Regarding claims 43-45 and 58, referring to Figures 1, 2, 4 and 5, Taga teaches

an optical communication system comprising:

a plurality of sections, each section including at least two dispersion elements

that have dispersions of opposite sign, wherein the plurality of sections permit

propagation of a stable or quasi-stable optical pulse and wherein the optical pulse has a

time bandwidth product greater than a time bandwidth product of an optical pulse that is

Gaussian in shape (i.e., a plurality of sections and each section including two

dispersion elements 6 and 5 that have dispersions of opposite sign, and inherently the

optical pulse when propagates through the sections has a time bandwidth product

greater than a time bandwidth product of an optical pulse that is Gaussian in shape,

Figs. 4 and 5, col. 3, lines 60-67 and col. 4, lines 1-25).

Regarding claims 47-49, Taga further teaches the difference between the

dispersion magnitudes of the two dispersion elements is less than 12ps/Km or less than

4ps/Km or less than 0.1ps/Km (Figs. 4 and 5, col. 3, lines 60-67 and col. 4, lines 1-25).

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   Claims 10 and 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Doran (UK Patent Application GB 2277651 A, cited by applicant) in view of Taga et

al (US Patent No. 5,471,333).

Regarding claim 10, referring to Figure 4, Doran teaches an optical

communication system for transmitting a soliton or substantially soliton pulse,

comprising:

a plurality of dispersion elements (i.e., elements 1 and 5, Fig. 4 and see abstract

section), and each dispersion element including a fiber length and a discrete dispersion

compensator having different dispersions (i.e., see Fig. 4 and abstract section).

Doran differs from claim 10 in that he does not specifically teach the path

average dispersion of the plurality of dispersion elements is anomalous. Taga from the

same field of endeavor, likewise teaches an optical soliton transmission system (i.e.,

Figs. 1, 2, 4 and 5). Taga further teaches that the path average dispersion of the

plurality of dispersion elements is anomalous (i.e., Figs. 4 and 5, col. 3, lines 60-67, col.

4, lines 1-25, col. 5, lines 1-67 and col. 6, lines 1-20). Based on this teaching, it would

have been obvious to one having skill in the art at the time the invention was made to

incorporate the path average dispersion of the plurality of dispersion elements is

anomalous as taught by Taga in the system of Doran. One of ordinary skill in the art

would have been motivated to do this since allowing compensating the dispersion of the

signal.

Regarding claims 47-49, the combination of Doran and Taga and teaches the

difference between the dispersion magnitudes of the two dispersion elements is less

than 12ps/Km or less than 4ps/Km or less than 0.1ps/Km (Fig. 5 of Taga).

12.   Claims 10, 11 and 50-57 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Taga et al (US Patent No. 5,471,333) in view of Suzuki et al

(US Patent No. 5,629,795).

Regarding claims 10, 50 and 52-56, referring to Figures 1, 2, 4 and 5, Taga

teaches an optical communication system for transmitting a soliton or substantially

soliton pulse (i.e., Figs. 1 and 4), comprising:

a plurality of dispersion elements (i.e., a plurality of dispersion elements and

each dispersion element comprising a first section 6 and a second section 5, Fig. 1, col.

3, lines 60-67 and col. 4, lines 1-25), and each dispersion element including a first fiber

length and a second fiber length having different dispersions (i.e., see Figs. 2 and 5, col.

3, lines 60-67, col. 4, lines 1-25, and col. 5, lines 1-40);

wherein the path average dispersion of the plurality of dispersion elements is

anomalous or zero (i.e., Figs. 1, 2, 4 and 5, col. 3, lines 60-67, col. 4, lines 1-25, col. 5,

lines 1-67 and col. 6, lines 1-20).

Taga differs from claims 10, 50 and 52-56 that he does not specifically teach the

dispersion element including a fiber length and a discrete dispersion compensator. Taga

teaches the dispersion element including a first fiber length and a second fiber length.

Suzuki, from the same field of endeavor, likewise teaches an optical soliton

transmission system (i.e., Figs. 4, 5, 7 and 8). Suzuki further teaches that a plurality of

dispersion elements and each dispersion element including a fiber length (i.e., optical

fiber 2, Fig. 4) and a discrete dispersion compensator (i.e., dispersion medium 4, Fig. 4,

col. 5, lines 65-67, col. 6, lines 1-53 and col. 7, lines 34-62). Based on this teaching, it

would have been obvious to one having skill in the art at the time the invention was
made to incorporate the dispersion element including a fiber length and a discrete
dispersion compensator as taught by Suzuki in the system of Taga. One of ordinary skill
in the art would have been motivated to do this since allowing compensating the
dispersion of the signal.

Regarding claims 11, 51 and 57, the combination of Taga and Suzuki differs from
claims 11, 51 and 57 in that it does not specifically teach the two dispersion elements of
a section comprise discrete dispersion compensators. It would have been obvious to
one having skill in the art at the time the invention was made to obtain the two
dispersion elements of a section comprise discrete dispersion compensators in order to
compensate the dispersion of the signal, since it has been held that mere duplication of
essential working parts of a device involves only routine skill in the art. St. Regis Paper
Co. v. Bemis Co., 193 USPQ 8.

13.   Claims 10, 11 and 50-57 are rejected under 35 U.S.C. 103(a) as
being unpatentable over Taga et al (US Patent No. 5,471,333) in view of Doran (UK
Patent Application GB 2277651 A, cited by applicant)

Regarding claims 10, 50 and 52-56, referring to Figures 1, 2, 4 and 5, Taga
teaches an optical communication system for transmitting a soliton or substantially
soliton pulse (i.e., Figs. 1 and 4), comprising:

a plurality of dispersion elements (i.e., a plurality of dispersion elements and
each dispersion element comprising a first section 6 and a second section 5, Fig. 1, col.

3, lines 60-67 and col. 4, lines 1-25), and each dispersion element including a first fiber

length and a second fiber length having different dispersions (i.e., see Figs. 2 and 5, col.

3, lines 60-67, col. 4, lines 1-25, and col. 5, lines 1-40);

wherein the path average dispersion of the plurality of dispersion elements is

anomalous or zero (i.e., Figs. 1, 2, 4 and 5, col. 3, lines 60-67, col. 4, lines 1-25, col. 5,

lines 1-67 and col. 6, lines 1-20).

Taga differs from claims 10, 50 and 52-56 that he does not specifically teach the

dispersion element including a fiber length and a discrete dispersion compensator. Taga

teaches the dispersion element including a first fiber length and a second fiber length.

Doran, from the same field of endeavor, likewise teaches an optical soliton transmission

system (i.e., Fig. 4). Suzuki further teaches that a plurality of dispersion elements and

each dispersion element including a fiber length (i.e., optical fiber 2, Fig. 4) and a

discrete dispersion compensator (i.e., compensating element 5, Fig. 4, and see abstract

section). Based on this teaching, it would have been obvious to one having skill in the

art at the time the invention was made to incorporate the dispersion element including a

fiber length and a discrete dispersion compensator as taught by Doran in the system of

Taga. One of ordinary skill in the art would have been motivated to do this since

allowing compensating the dispersion of the signal.

Regarding claims 11, 51 and 57, the combination of Taga and Doran teaches the

two dispersion elements of a section comprise discrete dispersion compensators (Fig. 4

of Doran).

Response to Arguments

14.   Applicant's arguments with respect to claims 10, 11, 43-45 and 47-58 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

HANH PHAN
PRIMARY EXAMINER